

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATION GUIDE SHEET**

PRESCRIBED GRAZING

(ac.)
CODE 528

GUIDELINES APPLICABLE FOR ALL PURPOSES

Removal of herbage will be in accordance with stocking rates, production limitations, plant sensitivities and management goals using Sections I and II of the South Dakota Technical Guide (SDTG) and other references as guidance.

Frequency of defoliations and season of grazing will be based on the rate and physiological conditions of plant growth.

Duration, time (season, length of grazing and rest periods), and intensity (degree of use, stubble height) of grazing will be based on desired plant community goals, expected productivity, and management unit objectives.

The intensity, frequency, duration, and season of grazing will be manipulated to promote ecologically sound plant communities, which will sustain the resources and meet the landowner's objectives.

Many legumes can induce bloat in livestock. In general, pastures containing 50 percent or less of legumes will have a very low incidence of bloat. Certain legume species have a lower probability of inducing bloat.

Severely degraded grasslands can benefit from one to two years of complete rest during the growing season (April 1st to October 31st).

Grazing prescriptions may need to be changed or adjusted when significant changes occur in plant vigor, species composition, animal kind or class, climate, and management objectives.

Where applicable, grazing prescriptions will be designed to maintain or improve riparian vegetation.

A monitoring program is needed to document actual grazing dates, livestock performance, climatic conditions, utilization, climate, and vegetation changes over time. Monitoring data is used to analyze outcomes and to adjust the grazing schedule.

Supplemental feed may be necessary to meet the desired nutritional levels for animals of concern. The proper placement and movement of supplemental feeds can be used as a method to distribute livestock throughout a pasture. Salt, minerals, creep feed and other supplements should not be placed in the vicinity of livestock watering facilities. Improper placement can have negative impacts on the soil, water, air, plant, and animal resources.

Use of natural or artificial shelter may be required in conjunction with this practice when conditions warrant.

Livestock water supply in every pasture must be adequate in quantity and quality to meet the demands of the livestock over the specified grazing period and under varying climatic conditions (i.e., drought).

Every grazing program must be tailored to the cooperators' goals and resources. Factors such as animal husbandry requirements (breeding programs, etc.) will affect the design of the grazing prescription and need to be considered.

Prescribed grazing should consider the needs of other enterprises utilizing the same land such as wildlife and recreational uses.

GUIDELINES FOR MONITORING DEGREE OF USE

Utilization (degree of use) or stubble height target levels are monitoring tools that can be used to help ensure that resource conservation and producer objectives are met.

On rangelands, seasonal utilization of desirable grasses and grass-like species should not remove more than 50 percent by weight of the total current year's growth. **Seasonal utilization** is measured at the end of the growing season and is the percentage of the current year's production that was removed by the grazing animals. Table 1 can be utilized as a tool to help determine the percent of weight removed of common grasses by estimating the percent of the plant height removed.

On range and pasture lands, temporal utilization on desirable grasses and grass-like species should not remove more than 30 percent by weight of the total current year's growth. **Temporal utilization** is the percentage of the current year's growth that is removed in any one grazing period. Temporal utilization is monitored in intensive grazing systems where pastures are grazed more than one time during the growing season. On rangeland, seasonal utilization requirements must still be followed on grazing systems where temporal utilization is monitored.

On pasturelands the desired species will not be grazed closer than the minimum leaf lengths shown in Table 2. Grazing use should not be initiated on pastureland until the desired species has reached the minimum height shown in Table 2. To maintain the health and vigor of the desired species, they should attain the minimum leaf length shown in Table 2 before the first killing frost. On grazing systems where pasture land fields are grazed more than one time during the growing season, temporal utilization should not remove anymore than 30 percent of the current year's growth during any one grazing period while still maintaining stubble height requirements found in Table 2.

Degree of use on desirable browse (woody) species should not remove more than 65 percent by weight of the current years' growth. Degree of use on browse species is based on the amount of current years' growth removed.

Dormant season grazing utilization of desirable grasses and grass-like species should not remove more than 60 percent by weight of the total current year's growth.

Grazing prescriptions on rangeland that are designed to alter the present plant community through intensive grazing by livestock (i.e., removal of Kentucky bluegrass) may require utilization levels above the guidelines listed above. In these cases, the desired degree of use of management species should be documented within the grazing plan and/or assistance notes.

Other uses or goals (nesting habitat, winter cover, fuel accumulation for prescribed burning, etc.,) for range and pasturelands may require that degree of use goals be adjusted to accommodate species or use requirements.

The following table provides some recommended utilization levels.

UTILIZATION GUIDELINES		
<i>Producer's goal</i>	<i>Seasonal Utilization</i>	<i>Temporal Utilization</i>
Maintain or improve plant health and vigor on rangeland	50%	30%
Maintain or improve forage quantity and quality on rangeland	50%	30%
Provide or improve nesting cover for many grassland nesting birds on rangeland	Generally 40 to 50% but species dependent	Generally 20 to 30% but species dependent
Maintain or improve forage quantity and quality on pastureland	See Table 2 for minimum leaf lengths	30%
Intensive grazing systems	50%	30%
Changing species composition on rangeland	>60% on targeted species <30% on desired species	>60% on targeted species <30% on desired species
Dormant season grazing	60%	N/A

ADDITIONAL GUIDELINES FOR THE DEVELOPMENT OF ROTATIONAL GRAZING PROGRAMS

A properly designed prescribed grazing schedule will meet the producer's goals, ensure maintenance and/or improvement of the plant resource by incorporating adequate recovery periods during the growing season, and meet the needs of the grazing animal. The number of pastures included in the prescribed grazing sequence and the number of times an individual pasture is grazed during the grazing season is the decision of the producer. Adequate recovery periods for grazed plants cannot be attained with continuous, season-long grazing of a single pasture. Continuous use of a single pasture (field) for the entire growing season (April through October) will meet this standard only on very large fields where livestock are either herded and/or by changing water locations within the pasture (turning water facilities on and off) thus insuring adequate recovery periods as defined below.

Livestock movements should be based on plant growth and utilization and not calendar dates. Calendar dates may be used as a guide when developing grazing schedules. See Chapter 5, Part 600.0500(e), of the National Range and Pasture Handbook, for additional information on prescribed grazing schedules at <http://www.glti.nrcs.usda.gov/technical/publications/nrph.html>.

When two or more pastures are planned to be grazed only **one time** during the growing season, the same pasture should not be grazed during the same period of the growing season in consecutive years. On rangeland, grazing periods should be alternated from year-to-year to ensure that either cool season or warm season grasses receive deferment during the majority of their growing season. The growing season for cool season grasses is April 1 to June 30 and June 1 to August 31 for warm season grasses. On rangelands, provide a minimum of 45 consecutive days of rest during the growing season of the desired forage species. On pasturelands, provide a minimum of 30 consecutive days of rest during the growing season. Special use pastures such as mono-cultures of crested wheatgrass or big bluestem may be utilized during the same period year after year as part of a complimentary grazing system (i.e., crested wheatgrass calving pasture(s) followed by a rotation on rangeland).

When two or more pastures are planned to be grazed **two or more times** during a growing season, plan the grazing sequence to avoid grazing the same pasture during the same portion of the growing season in consecutive years. Plan the recovery/rest periods so the grazed plants in each pasture will receive adequate time to replenish leaf area. Each pasture will be deferred for a minimum of 90 days during the growing season. The following table provides initial guidance in establishing the length of recovery periods when two or more pastures are planned to be grazed two or more times during a growing season.

SUGGESTED INITIAL RECOVERY PERIOD GUIDELINES WHEN PASTURES ARE PLANNED TO BE GRAZED TWO OR MORE TIMES DURING THE GRAZING SEASON		
Rangeland		
	<i>fast growth</i>	<i>slow growth</i>
West of the Missouri River	minimum of 40 days	minimum of 65 days
East of the Missouri River	minimum of 30 days	minimum of 55 days
Tame Pasture		
	<i>fast growth</i>	<i>slow growth</i>
West of the Missouri River	minimum of 30 days	minimum of 55 days
East of the Missouri River	minimum of 25 days	minimum of 45 days
Under drought conditions, recovery periods may need to be extended to 90 days or longer.		

Grazing periods should be kept as short as practical provided adequate recovery periods are maintained. Keeping the grazing periods as short as practical, especially during periods of fast plant growth, will minimize the opportunity for the grazing animals to graze plant regrowth prior to plant recovery.

These recovery guidelines will be used in the development of the initial prescribed grazing schedule. As the producer gains experience, grazing and recovery periods may be adjusted to reflect actual growing conditions.

The prescribed grazing sequence may be changed for short periods to take advantage of seasonal forages, such as sweet clover, cheatgrass, annual forages, and crop aftermath.

All domestic livestock must be removed from the pastures that are being deferred or rested.

ADDITIONAL GUIDELINES FOR IMPROVED ANIMAL HEALTH AND PRODUCTIVITY

Movement of animals will be in a manner to improve and/or maintain animal health and performance, and to reduce or prevent the spread of disease, parasites, and contact with harmful insects and toxic plants.

Grazing should be applied in accordance with forage quality and quantity criteria that best meets the production requirements for the kind and/or class of animal. Fecal samples and the Nutritional Balance Analyzer (NUTBAL) software are useful tools to monitor the nutritional status of grazing animals.

Handling of animals should be in a manner producing the least amount of stress as possible. Refer to the publication "[Stockmanship: A powerful tool for grazing land management](http://www.mt.nrcs.usda.gov/technical/ecs/range/stockmanship.html)" for low-stress handling methods at <http://www.mt.nrcs.usda.gov/technical/ecs/range/stockmanship.html>.

ADDITIONAL GUIDELINES FOR WATER QUALITY

Duration, intensity, frequency, and season of grazing in or near surface waters will be applied in such a manner that negative impacts to vegetation and water quality will be avoided.

Duration, intensity, frequency, and season of grazing will be applied to enhance nutrient cycling by better manure distribution and increased rate of decomposition.

The use of wells, rural water, pipelines, and tanks should be encouraged as alternatives to surface water supplies (dams, streams, dugouts) thus reducing the impacts on water quality and improving animal performance.

ADDITIONAL GUIDELINES FOR SOIL EROSION AND SOIL CONDITION.

Maintain the amount of vegetative cover needed to prevent accelerated soil erosion due to wind and water as prescribed by the appropriate wind and water erosion equations.

Duration, intensity, frequency, and season of grazing shall be managed to minimize soil compaction, sustain high levels of vegetative cover, reduce detrimental effects on soil condition, and minimize soil erosion.

ADDITIONAL GUIDELINES FOR PROVIDING FOOD, COVER, AND SHELTER FOR WILDLIFE

When needed, the prescribed grazing prescription will be designed to result in the plant community that will meet the needs of the animals of concern as to cover, shelter, food, nesting cover, etc. The habitat management guides in the SDTG should be used to provide assistance in writing the prescription.

Wildlife, especially larger herbivores and species in great abundance (i.e., prairie dogs) if present, should be considered first when calculating a Forage-Animal Balance.

ADDITIONAL GUIDELINES FOR THE DEVELOPMENT OF A DROUGHT CONTINGENCY PLAN

Drought is the most commonly occurring natural disaster impacting grazing lands. Drought contingency plans will help minimize drought impacts. At a minimum, these plans should contain the following items:

Trigger Mechanisms – an explanation of climatic conditions which will activate all or portions of the plan.

Grazing Land Resource Monitoring – steps to be taken to determine production, growth rates, etc.

Livestock Management – describe when and how to initiate steps such as culling, early weaning, etc.

Grazing Management – describe required changes in grazing management.

Marketing – explain the various marketing strategies, lease arrangements, price protection options etc.

Appendix 1 provides an example of a drought contingency plan.

**TABLE 1. PERCENT WEIGHT REMOVED AS A RELATIONSHIP TO
PERCENT HEIGHT REMOVED**

SPECIES	PERCENT OF HEIGHT REMOVED													
	10	20	30	40	50	55	60	65	70	75	80	85	90	95
Big Bluestem	2	6	11	17	23	30	35	41	46	54	62	71	79	89
Blue Grama	2	4	6	9	13	15	17	20	25	28	35	42	53	75
Buffalograss	2	5	7	11	18	21	32	35	38	45	53	62	71	77
Crested Wheatgrass	2	4	7	11	18	24	29	33	38	44	53	60	68	83
Green Needlegrass	2	4	6	11	16	20	25	30	36	44	52	61	71	85
Kentucky Bluegrass	1	3	5	9	14	16	20	26	34	40	47	57	71	85
Little Bluestem	1	4	9	15	23	27	32	37	41	47	53	61	70	82
Needleandthread	1	2	4	6	10	12	15	19	24	29	36	46	56	73
Ovalhead Sedge (wetland)	2	5	9	13	18	21	26	31	39	46	54	62	73	86
Prairie Junegrass	2	4	6	9	13	16	18	21	25	30	35	42	55	69
Prairie sandreed	2	6	11	17	23	30	35	41	46	54	62	71	79	89
Red Threeawn	2	6	11	17	26	30	36	42	46	53	61	70	78	89
Sandberg bluegrass	1	2	4	8	11	14	16	19	24	30	37	46	56	75
Sand Dropseed	1	3	5	8	12	17	21	25	30	35	46	56	68	83
Sideoats Grama	1	3	5	9	14	18	23	27	32	39	47	56	66	80
Slender Wheatgrass	2	6	9	12	17	21	27	31	36	42	51	59	69	80
Smooth Bromegrass	3	6	11	15	19	27	32	37	45	52	58	63	82	92
Switchgrass	2	5	9	13	20	26	30	36	42	50	59	68	76	89
Threadleaf Sedge (upland)	2	4	6	10	15	17	21	27	34	41	48	59	73	86
Western Wheatgrass	2	6	11	17	26	32	37	44	50	58	66	74	82	91

To use this table, first calculate the percent of the height of the plant removed by grazing. Find this figure on the top line of the table and then follow that column down to the appropriate species. This figure represents an estimate of the percent of the weight removed.

Table 2. Minimum Height of Pasture Species for Initiating and Terminating Grazing

Species	BEGIN GRAZING		END GRAZING	
	Minimum & Optimum Height of Vegetative Growth in Inches	Approximate Date	Minimum Stubble Height in Inches	Minimum Regrowth Before Killing Frost in Inches
Alfalfa	6 - 10	May 15	3	8
Big & Sand Bluestem	8 - 14	July 1	6	6
Creeping Foxtail	8 - 10	May 7	3	6
Crested Wheatgrass	4 - 6	April 20	3	4
Green Needlegrass	6 - 8	May 15	3	5
Indiangrass	8 - 14	July 1	6	6
Intermediate Wheatgrass	8 - 14	May 15	4	6
Kentucky Bluegrass	4 - 6	May 7	2	4
Little Bluestem	4 - 6	July 1	3	4
Orchardgrass	6 - 10	May 15	4	6
Pubescent Wheatgrass	8 - 14	May 15	4	6
Prairie Sandreed	8 - 14	June 20	4	6
Reed Canarygrass	8 - 8	May 7	4	6
Russian Wildrye	4 - 4	May 7	3	4
Sideoats Grama	4 - 6	June 20	2	4
Slender Wheatgrass	6 - 12	May 7	3	6
Smooth Brome grass	8 - 14	May 7	4	6
Switchgrass	12 - 20	June 20	8	10
Tall Wheatgrass	8 - 14	May 7	4	6
Timothy	6 - 10	June 1	3	5
Western Wheatgrass	6 - 10	May 15	4	5

Notes on Table 2.

Recommended grazing heights for grass mixtures or grass legume mixtures should be for the dominant or desired species.

Height is the average height when leaves are lifted in a vertical position.

Jointed grasses such as smooth brome grass and Intermediate wheatgrass should be grazed in the early boot stage, prior to seed set to trigger regrowth of basal sprouts.

The last harvest of Alfalfa should generally be made 35 to 45 days prior to the time the first hard freeze normally occurs.

On pasture grazed during the dormant season, stubble height at the end of the grazing period is applicable.

Approximate date is for continuous grazing and is highly dependent on present climatic conditions. Rotation grazing usually can begin seven or more days earlier in the season.

Appendix 1.

Example Drought Contingency Plan

Review previous 12 months of precipitation records and compare to the local 30-year average.

Obtain 30-year average monthly precipitation records for the nearest weather station.

Using local monthly precipitation records compare monthly shortfall.

Initiate a marketing strategy plan that utilizes all possible marketing sources, price protection, and contracting possibilities.

Begin to routinely monitor soil moisture and plant growth on a weekly basis.

Implement phase I if the past 6 months precipitation records are 50 percent below the 30-year average.

Cull 10 percent of the herd the first month of grazing if precipitation remains 50 percent below 30-year average.

Implement phase II if the first 3 months of the grazing season receives less than 50 percent of the 30-year average monthly precipitation.

Remove 30 to 50 percent of the herd as regrowth dictates (i.e., little or no regrowth in a 30-day recovery period for pastures in rotation).

Implement phase III if the first 4 months of the grazing season receives less than 50 percent of the 30-year average monthly precipitation.

Measure remaining forage in all pastures.

Combine herds into one large herd.

Allocate remaining forage in each pasture to the one herd (i.e., graze each pasture the length of time it takes to utilize the remaining grazeable forage while keeping adequate cover for erosion control.) Adequate cover is considered to be 1,000 to 1,200 lbs. dry matter per acre.

Begin early weaning of calves.

Remove all remaining livestock as soon as markets are favorable or alternative forage is procured.